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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,940	09/07/2006	John Piper	41009.0200	6344

20322 7590 08/25/2010

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EXAMINER	
MILLER, ROSE MARY	
ART UNIT	**PAPER NUMBER**
2856	

MAIL DATE	DELIVERY MODE
08/25/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/558,940	PIPER, JOHN	
	Examiner	Art Unit	
	ROSE M. MILLER	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16-39,42-48 and 50-52* is/are pending in the application.

4a) Of the above claim(s) *6,7,16-39,42-48 and 50* is/are withdrawn from consideration.

5)☒ Claim(s) *51 and 52* is/are allowed.

6)☒ Claim(s) *1-5, 8 and 11-14* is/are rejected.

7)☒ Claim(s) *9 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 November 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-5, 8, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Haynes (US Re. 36,130)** in view of **Karlsson (US 4,041,379)** and **Berner et al. (US 3,913,388)**.

With regards to claim 1, **Haynes '130** discloses a device for supporting an ultrasonic transducer (S) used for ultrasonic defect testing of pipe (P), the device comprising: a transducer locating portion (62) adapted for positioning adjacent to a pipe to locate the transducer in proximity of the pipe (see Figures); and a guide surface (80, 82, 66) that is fixed against movement in relation to the transducer locating portion (see column 3 lines 20-31).

Haynes '130 discloses the claimed invention with the exception of the guide surface being adapted such that, when the device is moved longitudinally relative to the pipe, the guide surface can engage and traverse hindrances in the pipe located at the ends of, or along the pipe, to such relative device movement.

Karlsson discloses in Figure 1 a contact surface 26 which is adapted such that when the device is moved relative to the object being inspected, the guide surface (26)

can engage and traverse hindrances in the test object in the direction of travel of the ultrasonic transducer (inherent in the shape of the surface shown in Figure 1 which includes bevels at either end of the contact surface 26 such that the transducer traverses hindrances in the direction of travel which is indicted by arrow 7 in Figure 1).

Berner et al. teaches at column 3 line 50 – column 4 line 14 utilizing a transducer support 11 which includes a ramp (bevel) 11a which allows the transducer support to detect and traverse hindrances such as bumps in the test object 1 in the direction of travel of the ultrasonic transducer (object 1 is moved in direction of arrow 2 in Figure 1 such that the bevel 11a allows the transducer support to detect and transverse hindrances in the test object 1, this is equivalent to moving the ultrasonic transducer in a direction opposite to arrow 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of **Haynes '130** with the contact surface of either **Karlsson** or **Berner et al.** in order to traverse hindrances which are located at the ends of or along the test object (pipe) in the longitudinal direction of travel of the ultrasonic transducer as both **Karlsson** and **Berner et al.** teach that the use of the guide surface allows the ultrasonic transducer locating portion (transducer support) to traverse hindrances in the direction of travel of the transducer such as bumps which can occur in the test object and affect the testing results.

With regards to claim 2, **Haynes '130**, **Karlsson** and **Berner et al.** teach the guide surface being located forwardly in the transducer locating portion (**Haynes '130** teaches guide surfaces 80 and 82 in front and back as does **Karlsson** in Figure 1 while **Berner et al.** discloses the guide surface 11 being in front of the transducer support) such that hindrances found in the path of the transducer can be overcome when the device is moved relatively lengthwise along the pipe.

Wit respect to claim 3, **Haynes '130** discloses the guide surface extending obliquely with respect to a longitudinal axis of the pipe (surfaces 80 and 82 are tapered with respect to the longitudinal axis of the pipe) as does **Berner et al.** which shows the guide surface 11a being at an oblique angle with respect to the direction of travel of the ultrasonic transducer.

With respect to claim 4, **Haynes '130** discloses the guide surface being at an end of the transducer locating portion (see Figure 4). With regards to the guide surface being part of a flange extending away from the transducer locating portion, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of **Haynes '130** with such a guide surface as **Berner et al.** teaches that a guide surface extending away from the transducer locating portion allows the guiding surface to guide the transducer over hindrances such as bumps which could interfere with the inspection of the test object.

With regards to claim 5, **Haynes '130** discloses the claimed invention with the exception of the guide surface being defined as a bevel undercut at an in-use forward end of the device. **Berner et al.** teaches utilizing a bevel undercut at an in-use forward end of the device in order to allow the ultrasonic transducer support system to move over hindrances such as bumps in the test object. Therefore, it would have been obvious to one of ordinary skill in the art to modify **Haynes '130** to include the bevel undercut guide surface of **Berner et al.** in order to move the transducer support over hindrances such as bumps which can be found in the test object.

With regards to claim 8, **Haynes '130** teaches a transducer locator element (62, 64, 66, 74) being disposed within the transducer locating portion (see Figure 4), into which element the transducer is mountingly located in use (see Figure 4).

With regards to claim 11, **Haynes '130** discloses the transducer locating portion (62, 64, 66, 74) including a curved in-use underside surface (68) for close-facing positioning with the pipe in use (see column 3 lines 20-31).

With regards to claim 12, it is inherent in the system of **Haynes '130** that the curved surface be defined by a radius that is closely matched to a radius defining the external surface of the pipe as **Haynes '130** clearly indicates at column 3 lines 20-31 that the curved surface 68 "which rides on the outer surface of the pipe P." In order for the curved surface to "ride on the outer surface", the curvature of the surface must closely match the curvature of the pipe being inspected.

With regards to claim 13, **Haynes '130** discloses the device being mounted in an apparatus (A) for moving the device (S) relatively along and/or around and/or

towards/away from the pipe in use (see column 4 lines 31-64 which discloses the "rotational speed of the sensor assembly S").

With regards to claim 14, **Haynes '130** discloses a plurality of the ultrasonic transducer supporting devices being mounted in the apparatus (see Figures 1-3).

Double Patenting

4. Claims 9 and 10 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 51 and 52. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Allowable Subject Matter

5. Claims 51-52 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest a device for supporting an ultrasonic transducer used for ultrasonic defect testing of pipe, the device comprising: a transducer locating portion adapted for positioning adjacent to a pipe to locate the transducer in proximity of the pipe; and a guide surface that is fixed against movement in relation to the transducer locating portion, the guide surface being adapted such that, when the device is moved longitudinally relative to the pipe, the guide surface can engage and traverse hindrances in the pipe located at the ends of, or along the pipe, to such relative device movement, wherein a transducer locator element is disposed within the transducer locating portion, into which element the transducer is mountingly located in use, and especially wherein the transducer locator element laterally surrounds the transducer and is formed from a material resistant to the propagation of ultrasonic waves therethrough, such that ultrasonic waves are not directed laterally through the device in use.

Response to Arguments

7. Applicant's arguments filed 03 June 2010 have been fully considered but they are not persuasive.

Applicant argues the following:

"The Examiner rejects claims 1-5, 8 and 11-14 under 35 USC 103(a) as being unpatentable over Haynes (US Reissue 36,130) in view of Karlsson (US Patent No. 4,041,379) and Berner et al (US Patent No. 3,913,388). Applicants respectfully disagree with these rejections, but Applicants submit claim amendments to expedite prosecution and to clarify the patentable subject matter.

While both the claimed invention and Haynes generally include ultrasonic testing of pipe surfaces, Applicants assert that Haynes is limited to a device for ultrasonically gauging the thickness of a pipe and for testing for sub-surface defects. The Haynes device is arranged to rotate in a transverse direction around the pipe to transcribe a spiral along its length. The Haynes device is capable of retracing its circumferential path, depending on how the pipe is manipulated. Measurement in Haynes is conducted by generating a compression wave and receiving a distinct back wall echo.

In contrast, Applicants assert that the claimed invention is primarily (although not solely) concerned with locating weld seam discontinuities in pipes. To achieve its objectives, the claimed invention employs shear wave transducers, and as such, measurements are prone to spurious surface wave propagation. Applicants assert that Haynes is entirely silent on addressing the problem of damping spurious surface waves because it is not an issue for the testing regime performed by the Haynes' device.

Similarly, it must be appreciated that weld seam discontinuities may be present at any point located at the ends of, or along the length of the pipe. Accordingly, Applicants assert that the device of the claimed invention is adapted to be moved longitudinally relative to the pipe from the extremity at each end of the pipe and along the entire pipe length to locate such defects. The claimed invention is provided with a guide surface that is adapted to engage and traverse hindrances in the pipe located at the ends of (or along) the pipe, in response to relative longitudinal movement of the pipe to the device (see page 2, lines 2537).

In this latter respect, Haynes is entirely silent, as the Examiner correctly concedes. Moreover, Applicants assert that neither Karlsson nor Berner et al teach a guide surface that is adapted to engage and traverse hindrances in the pipe located at the ends of the pipe when the device is moved longitudinally relative to the pipe.

More specifically, Karlsson describes a device that carries one or more probes across the surface of a block metal (e.g. slab billet and so forth). Applicants assert that no reference to a pipe surface exists in Karlsson. Further, Applicants assert that Karlsson does not address the problem of engaging the probes at the extremities (i.e. the edges) of such planar surfaces. Karlsson also does not address the issue of damping spurious surface waves, as it is concerned with detection of subsurface defects, presumably using a compression wave. Spurious surface waves would not interfere with such measurements.

Berner et al describes a device that also carries a group of probes across the surface of a sheet. Applicants assert that Berner is silent with regard to the use of the device relative to a pipe surface and it does not address the problem of engaging the probes at the extremities of the Sheet surface. The probe holders move in a sinusoidal motion along the sheet, which contrasts with (and teaches away from) the claimed invention which moves the device longitudinally relative to the pipe. Additionally, Berner et al has no need to address the issue of damping spurious surface waves because it is concerned with locating subsurface defects, and spurious surface waves would not interfere with such measurements.

In contrast, Applicants assert that the guide surface of the claimed invention is adapted to engage and traverse hindrances located at the ends of (i.e. the extremities) and along the length of the pipe. Further, Applicants assert that the claimed invention is adapted to dampen spurious surface waves which would interfere with the defect testing regime of the device. The problem of damping spurious surface waves is addressed by disposing a transducer locator element within the transducer locating portion and mounting the transducer within the element. The transducer locator element laterally surrounds the transducer and is formed from a material which is resistant to the propagation of ultrasonic waves therethrough, thereby shielding the transducer from such spurious surface waves which may travel laterally through the device."

Applicant is arguing features which are clearly not found in the claimed invention. The claims, as now found within the present application, do NOT locate "weld seam discontinuities in pipes". In fact, there are NO elements within the recited claims which are directed to the type or nature of the ultrasonic inspection being performed. The claims, as they are found within the application, are directed to the SUPPORT for the ultrasonic transducer, and ONLY to the transducer support. Therefore, any arguments

based upon the types of transducers being used (i.e. shear wave transducers), the types of waves addressed (i.e. spurious surface waves), or the locations of the defects being tested for (i.e. at the pipe ends) are moot and spurious arguments that will NOT be persuasive based upon the claimed invention as it is now found within the application. These are all features and elements which are not found within the claimed invention.

Claims 51 and 52, which have been allowed, and claims 9 and 10 which are objected to as being duplicates of claims 51 and 52, are the ONLY claims which address Applicants requirement of the transducer locator element laterally surrounding the transducer and being formed of a material which is resistant to the propagation of ultrasonic waves therethrough, thereby shielding the transducer from spurious surface waves. None of the other claims require these elements and therefore, these arguments are moot with regards to the remaining claims.

The rejections of claims 1-5, 8, and 11-14 as recited above are therefore deemed proper and are hereby made final.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROSE M. MILLER whose telephone number is (571)272-2199. The examiner can normally be reached on Monday - Friday, 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hezron Williams/
Supervisory Patent Examiner, Art Unit 2856

/R. M. M./
Examiner, Art Unit 2856
11 August 2010